REMARKS

Claims 1-19 remain in the application. Claims 1-19 have been rejected. Claim 5 has been objected to.

Applicant respectfully responds to this Office Action.

Claim Objections

Claim 5 was objected to because of informalities. Claim 5 has been amended to correct the informalities.

Claim Rejections under 35 U.S.C. § 102

Claims 1-19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication 2002/0150065 to Ponnekanti (hereinafter "Ponnekanti").

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (Aug. 2001) (*quoting Verdegaal Bros. v. Union Oil Co. of California,* 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Id.* (*quoting Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 1236, 9 USPQ2d 1051, 1053 (Fed. Cir. 1987)). In addition, "the reference must be enabling and describe the applicant's invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention." *In re Paulsen,* 30 F.3d 1475, 1479, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994)

Applicants respectfully submit that claims 1-19 are not anticipated by Ponnekanti for the reasons and explanations set forth below.

With respect to claims 1 Applicant respectfully submits that Ponnekanti does not teach or suggest all of the limitations of amended claim 1. In particular, Ponnekanti does not disclose "a quality message processing unit for generating a quality message and differential indicators based on the measured link quality and for generating a parity check corresponding to the quality

message; and a differential analyzer for determining changes in the measured link quality using the quality message and differential indicators".

Ponnekanti discloses communication systems in four embodiments. The first embodiment discloses the fact that a plurality of transmission paths may exist between a base station and a mobile unit. This embodiment forms a directional transmission beam for each transmission path and transmits a separate transmission signal in each transmission beam. Each of the transmission signals is encoded differently using a space-time diversity scheme in order to reduce interference between the signals. (Paragraph 0153)

The second embodiment of Ponnekanti uses path diversity in the downlink between the base station and a mobile unit, with different channel coding applied to each transmission signal. The channel coding for each transmission signal is chosen so as to reduce the cross-correlation between the transmission signals, thus reducing interference. (Paragraph 0186)

The third embodiment disclosed by Ponnekanti provides that the transmission signals from a base station to a mobile station are monitored, and if a transmission signal has faded then transmission of that signal is suspended to reduce interference to other transmission signals. The decision whether to suspend transmission of a transmission signal is based on a feedback signal which is sent from the mobile unit to the base station. (Paragraph 0207) Filter outputs are fed to beam quality indicators, which produce a measure of the quality of signals transmitted via the corresponding transmission path. The measures may be based on a history or average of measurements taken over several measurement periods. (Paragraph 0218).

The fourth embodiment of Ponnekanti discloses a time advance that is selectively applied to certain transmission signals so that different transmission signals transmitted via different transmission paths arrive at a mobile unit in approximate time synchronization, thus maintaining the orthogonality between the transmission signals. (Paragraph 0245)

The Examiner states that "Ponnekanti in the invention of 'Communication Systems' disclosed a method for wireless communication system comprising, a quality measurement unit (items 262, 264 of Fig. 11, para 0216-0218) for iteratively measuring link quality of a communication link(average of measurements taken over several measurement periods, para. 0218, 0232, 0233), a quality message processing unit (item 266 of Fig. 11, para 0219) for

generating a quality message (feedback signal) and differential indicators (beam quality indicators, items 262, 264 of Fig. 11, para 0219) based on the measured link quality and for generating a parity check (BER, para 0218) corresponding to the quality message, and a differential analyzer (path diversity controller, item 240, of Fig. 10) for determining changes in the measured link quality. (para 0214, 0215) using the quality message (feedback signal) and differential indicators (FBI bits, para 0220, 0221)[Figs 10, 11, para 0021]." Applicant respectfully disagrees with the Examiner's statement for the reasons set forth below.

Despite diligent study of the Ponnekanti reference, Applicant finds no disclosure of the limitations "a quality message processing unit for generating a quality message and differential indicators; a differential analyzer for determining changes in the measured link quality using the quality message and differential indicators". The Examiner cited paragraph 0218. Paragraph 0218 discloses that "Any of the measures could be based on a history or average of measurements taken over several measurement periods (e.g. time slots) to avoid possible instability when two or more of the transmission paths have approximately the same instantaneous quality". Applicant respectfully submits that this disclosure is diametrically opposed to Applicants' use of quality messages and differential indicators. Ponnekanti averages quality measurements to avoid instability and thus has no need for differential indicators, and no trend in quality can be measured. The Examiner cites the beam quality indicators discussed in paragraph 0219 as disclosing the differential indicators of Applicants' claim 1. The beam quality indicators provide a measure of beam quality at the time of measurement and do not serve as incremental measurements of quality. Ponnekanti does not use both a quality message and differential indicators, rather the feedback signal contains information measured by the beam quality indicators (para. 0219). As a result, Ponnekanti does not disclose "a quality message processing unit for generating a quality message and differential indicators; a differential analyzer for determining changes in the measured link quality using the quality message and differential indicators". Therefore, Applicants respectfully request that the rejection of claim 1 be withdrawn.

Claims 2 and 3 are each allowable as depending either directly or indirectly from allowable claim 1.

Claim 4 is allowable for the same reasons given above for claim 1. In addition, claim 4 is allowable for the following reason. The Examiner cites paragraphs 0220 and 0221 as disclosing "the differential indicators indicating changes in the quality". The cited paragraphs read as follows:

> When implementing the present embodiment, the frame format shown in FIG. 2 may be used for downlink transmission. The pilot bits contained in the control channel may be used for measuring the quality of the received signals in the beam quality indicators, 262, 264.
>
> In the uplink, the frame format shown in FIG. 3 may be used, and the feedback signal may be sent using the feedback information bits FBI. In one example, a single FBI bit is used for each transmission beam, the bit indicating whether or not the beam has faded. Thus, if two transmission beams were sent, then two feedback symbols would be needed on which to base path selection. Alternatively, a number of FBI bits may be used to indicate the quality of each transmission beam…

Thus, Ponnekanti discloses beam selection based on a single measure of beam quality, not "quality messages and differential indicators" since each FBI bit is in a one to one relationship with the number of beams.

Claim 5 is allowable as depending directly from an allowable base claim and also for the following reason. As noted above, Ponnekanti uses a single measure of quality taken at an instant in time and does not disclose "differential indicators indicating changes in the quality of the communication link". Because Ponnekanti uses only a single measure of quality sent in a feedback message, Ponnekanti cannot disclose "generating differential indicators at a second frequency, the differential indicators indicating changes in the quality of the communication link, wherein the second frequency is greater than the first frequency." The paragraphs cited by the Examiner refer to the structure of a physical transmission channel, and not to the frequency of generating a measure of quality. Therefore, Applicants respectfully submit that claims 4 and 5 are allowable.

Claims 6-7 are each allowable as depending either directly or indirectly from allowable claim 4.

Claim 8 is allowable for the same reasons given above for claim 1. In addition, claim 8 is allowable because Ponnekanti does not disclose the limitation "transmitting differential indicators independently of quality messages" as disclosed by Applicants' claim 8. Because Ponnekanti does not disclose transmitting differential indicators, it also cannot disclose transmitting differential indicators independently from the quality messages. The Examiner cited paragraphs 0039-0044 as disclosing this limitation. However, the cited paragraphs describe receiving one quality indication per transmission beam and selecting one of the transmission beams based on the indicated quality. As noted above, this is a single quality indication that does not and cannot indicate trends in the transmission beam. Furthermore, Ponnekanti does not disclose "estimating a channel condition over a first time window" as found in claim 8. The cited paragraphs 0216-0221 refer to the operation of the system and disclose a frame structure, not a "first time window". The time slot mentioned in paragraph 0221 refers to a time slot within a frame and not to a "first time window" for estimating a channel condition as found in Applicants' claim 8. Ponnekanti is silent concerning a "first time window". Therefore, Applicants respectfully request that the rejection of claim 8 be withdrawn.

Claims 9 and 10 are allowable as depending directly from an allowable base claim.

Claim 11 is allowable for the same reasons given above for claim 8.

Claim 12 is allowable for the same reasons given above for claims 1, 4, and 8.

Claim 13 is allowable for the same reasons given above for claims 1, 4, and 8.

Claim 14 is allowable as depending directly from an allowable base claim.

Claim 15 is allowable for the same reasons given above for claims 1, 4, and 8. In addition, claim 15 is allowable because Ponnekanti does not disclose the limitation "determining a transmission rate for transmission of quality messages and differential indicators based on the comparison" as found in claim 15. Since Ponnekanti does not disclose "differential indicators" and therefore, cannot disclose "transmission of quality messages and differential indicators based on the comparison". In addition, as noted above for claim 1, Ponnekanti may use historical data or average measurements taken over several measurement periods, which is in direct contrast to the disclosure of Applicants' claim 15.

Claim 16 is allowable for the same reasons given above for claims 1, 8 and 15.

Claim 17 is allowable as depending directly from an allowable base claim.

Claim 18 is allowable for the same reasons given above for claims 1 and 8.

Claim 19 is allowable as depending directly from an allowable base claim.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicant submits that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

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